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PHOTOGRAPHIC INTERPRETATION REPORT



COMMUNICATIONS
FACILITIES AVAILABLE
TO DEPLOYED SOVIET
SA-5 SAM COMPLEXES

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JANUARY 1968

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PHOTOGRAPHIC INTERPRETATION REPORT

COMMUNICATIONS FACILITIES AVAILABLE TO DEPLOYED SOVIET SA-5 SAM COMPLEXES

JANUARY 1968

NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER

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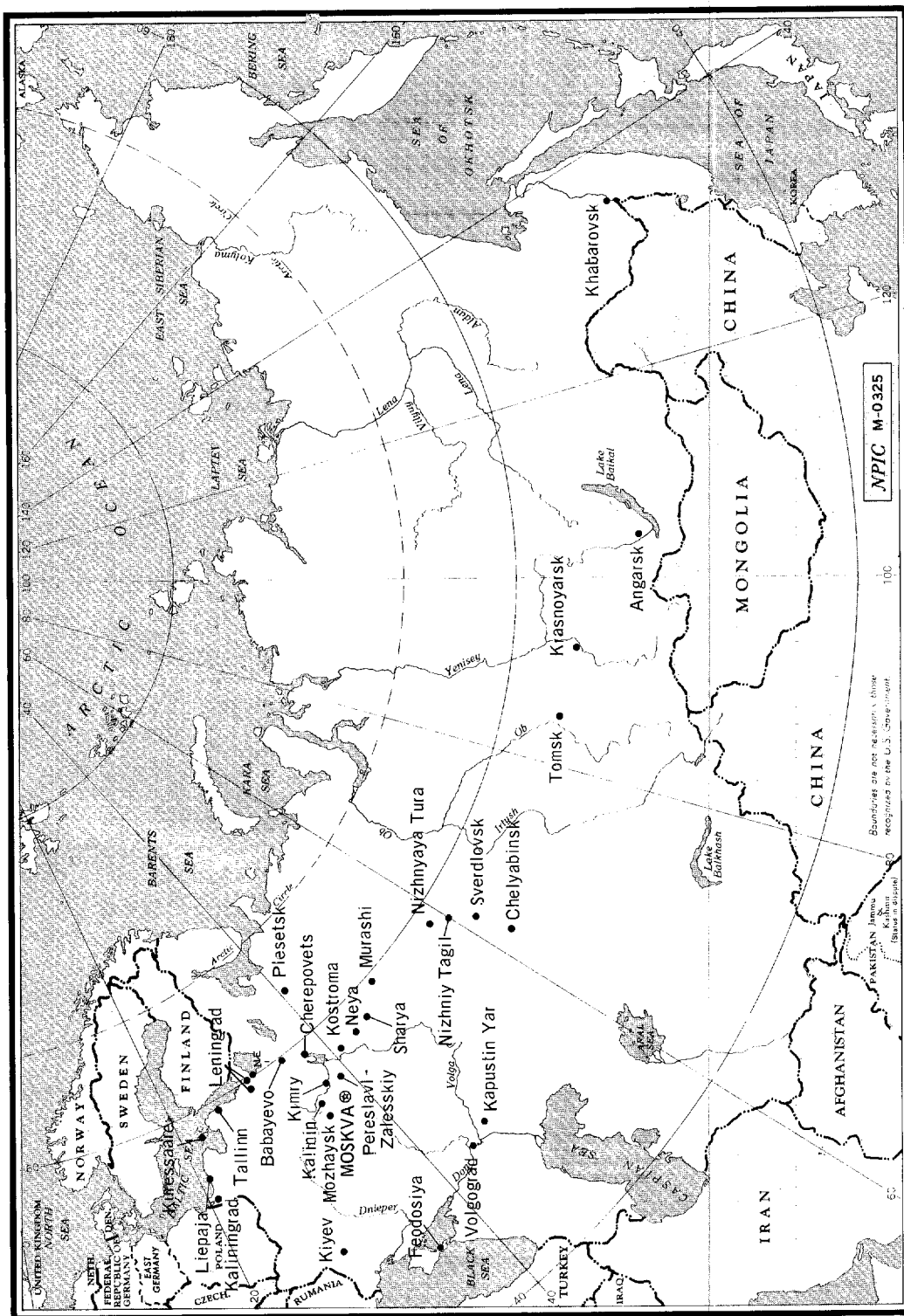


FIGURE 1. LOCATION OF DEPLOYED SA-5 SAM COMPLEXES SEARCHED FOR COMMUNICATIONS FACILITIES.

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INTRODUCTION

This report has been prepared in response to NSA Requirements NSA/PO432/R119-66 and NSA/SOC/R47-66. One of these requested an examination of [redacted] photography for communications common to Soviet SA-5 complexes. The other requested a search of the Tallinn area to identify the Tallinn Air Defense Zone (ADZ) Headquarters and any associated air-warning radar and communications facilities.

In the Tallinn area the indications are that the Tallinn SA-5 Complex and the Tallinn ADZ Headquarters are complementary and interconnected components of the general air defense situation. For this reason these 2 requirements are joined.

All known deployed SA-5 complexes (Figure 1) were examined for communications systems on all available photography through [redacted] the cutoff date of this report. Certain items derived from a limited search of later missions are also included.

A summary of information concerning identified antennas is presented in Table 1.

GENERAL DISCUSSION

The major effort of this study was an attempt to identify communications facilities available to Soviet SA-5 complexes. Although this effort was successful to a degree, it must be stated that something less than a complete picture of communications service available between SA-5 complexes and higher echelons has emerged. Two SA-5 complexes, Cherepovets and Tallinn, do tend to give some insight, with respect to such communications links, in that cable scars can be traced from the SA-5 launch areas and associated BACK NET/SIDE NET radar facilities to the vicinity of the communications components serving conventional air-warning facilities, or in the case of Tallinn, the ADZ Headquarters. To this extent, therefore, it appears that the SA-5 complexes are a component

of the general air defense system and utilize communications serving the same facilities that are attendant to the air defense command of the area as a whole. This conclusion is demonstrated in this analysis of the Tallinn area.

Figures 2, 4, and 5 of this report show a transmitting facility and a receiving facility which are apparently connected by cables not only to the Tallinn SA-5 Complex, but also to a conventional air-warning radar facility (Figure 3). A building area which is collocated with the conventional radar facility has been identified as the Tallinn ADZ Headquarters. It would appear that the Tallinn SA-5 Complex, its associated BACK NET/SIDE NET site, the conventional air-warning radar facility, the Tallinn ADZ Headquarters, and its associated receiving and transmitting facilities are all components of the same general air defense system. The probable commanding element in this system would be the Tallinn ADZ Headquarters, and the communications, conventional air-warning radar, and SA-5 complex are subordinate elements in this system.

There are noticeable similarities between the Cherepovets Air Defense Headquarters and the Tallinn ADZ Headquarters. Both of these facilities have available HF communications and air-warning facilities, and are located near an SA-5 launch complex.

TALLINN AIR DEFENSE ZONE HEADQUARTERS AND AIR-WARNING RADAR FACILITY

The Tallinn Air Defense Zone Headquarters (Figures 2 and 3) is 6.5 nm south-southwest of Tallinn at 59-21-55N 24-38-20E. The associated air-warning radar facility was occupied by BAR LOCK and ROCK CAKE/STONE CAKE radars on mounds (see inset of Figure 3) on Mission 4036 and attended by 7 vans/trucks.

The ADZ Headquarters consists of 2 large operations buildings and 7 smaller support buildings. A support/training area is located just

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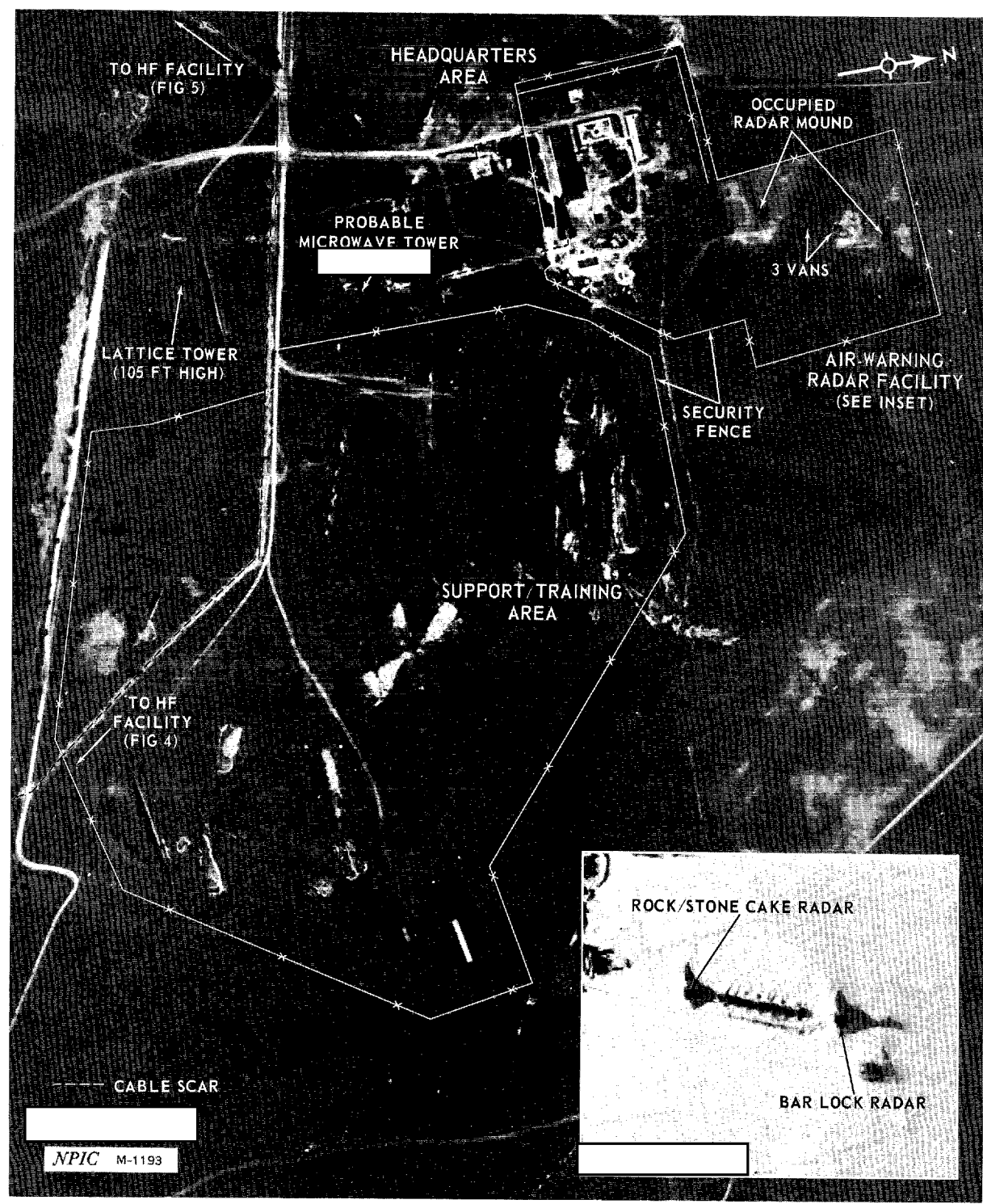


FIGURE 2. TALLINN AIR DEFENSE HEADQUARTERS FACILITY, RECEIVING COMMUNICATIONS FACILITY, TRANSMITTING COMMUNICATIONS FACILITY, AND THICK EIGHT FACILITY.

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FIGURE 3. TALLINN AIR DEFENSE HEADQUARTERS FACILITY, AIR WARNING RADAR FACILITY, AND SUPPORT/TRAINING AREA.

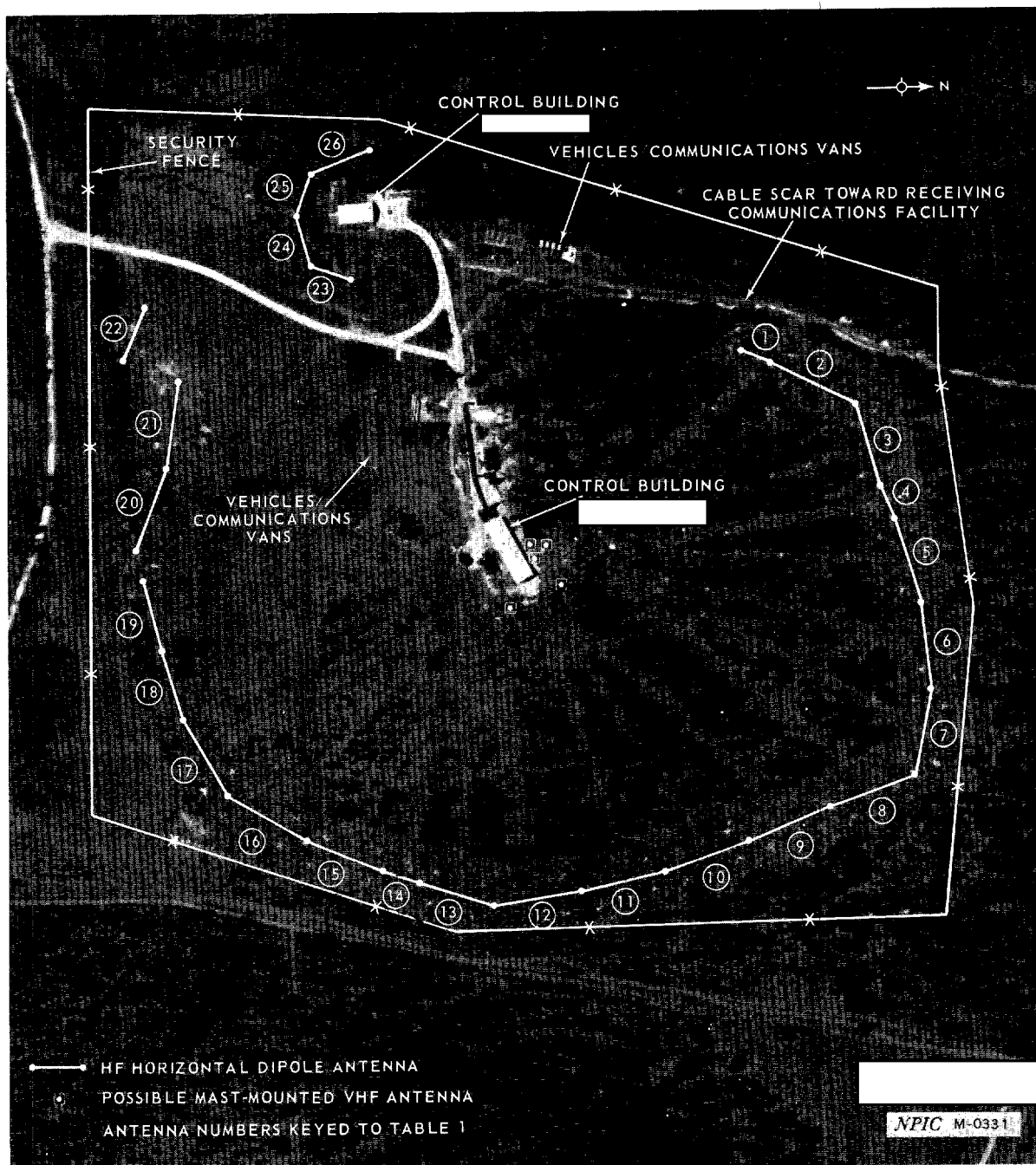
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FIGURE 4. TRANSMITTING COMMUNICATIONS FACILITY AVAILABLE TO TALLINN SAM COMPLEX B28-5.

south of the Headquarters and contains a probable microwave tower approximately 125 feet high and a lattice tower of undetermined purpose approximately 105 feet high.

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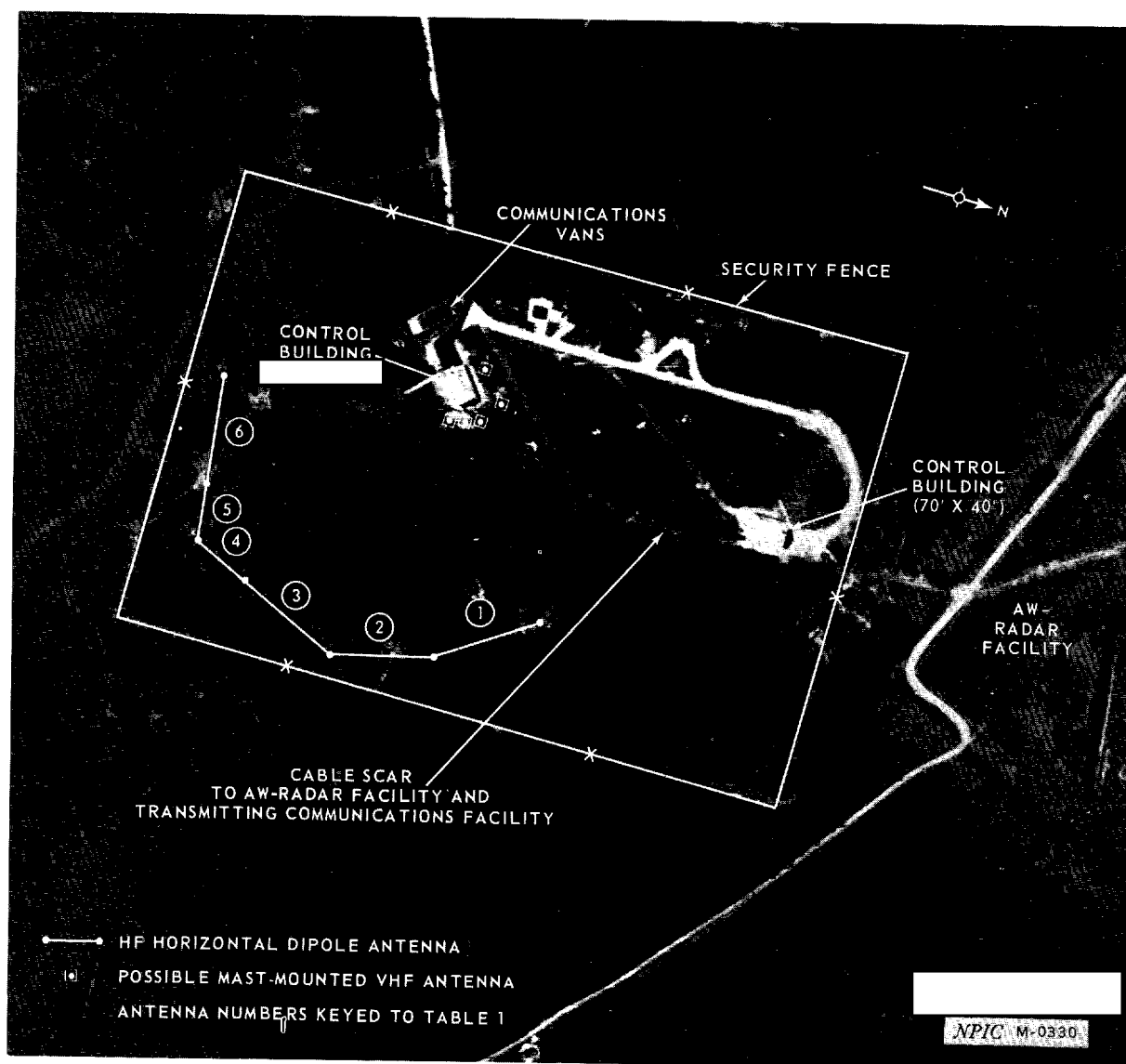
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FIGURE 5. RECEIVING COMMUNICATIONS FACILITY AVAILABLE TO TALLINN SAM COMPLEX B28-5.

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ADZ HEADQUARTERS COMMUNICATIONS FACILITIES AVAILABLE TO TALLINN SAM COMPLEX B28-5

Following is a description of the Tallinn

ADZ Headquarters Communications Facilities which, based on the identification of buried cabling, are determined to be available to the Tallinn SA-5 Complex (Figure 2).

The transmitting facility (Figure 4) is 9.5 nm southeast of the launch complex at 59-18N 024-36E and contains 6 mast-mounted probable VHF antennas and 26 horizontal dipole antennas (Table 1). It is secured and supported by 2 control buildings, 1 utility building, and 16 vehicles/

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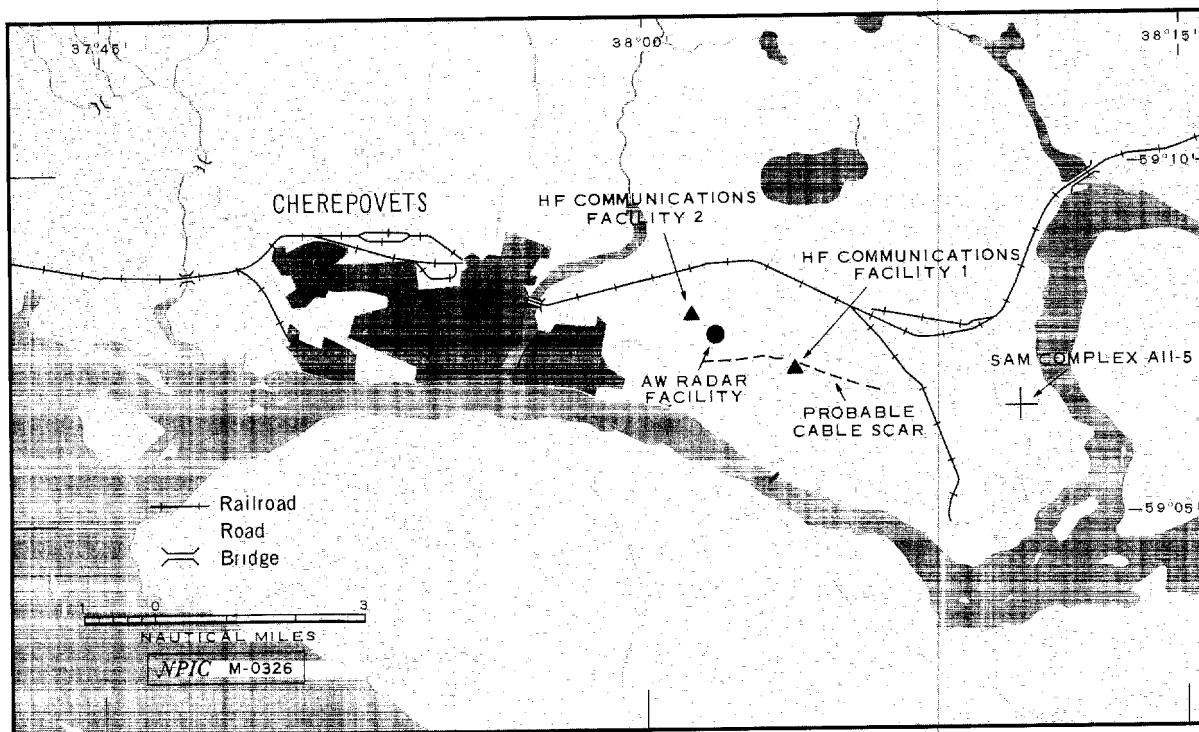


FIGURE 6. LOCATION OF CHEREPOVETS SAM COMPLEX A11-5, AW RADAR FACILITY AND HF COMMUNICATIONS FACILITIES 1 AND 2.

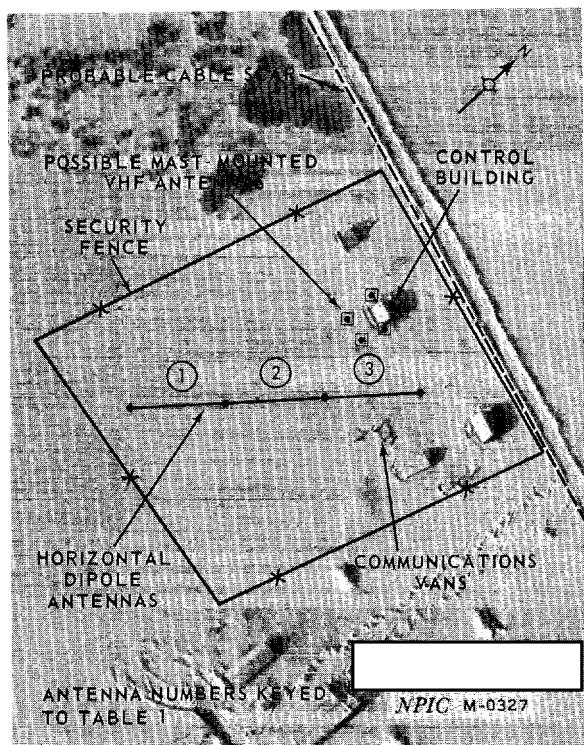


FIGURE 7. HF COMMUNICATIONS FACILITY 1 AVAILABLE TO THE CHEREPOVETS SAM COMPLEX A11-5.

communications vans.

A buried cable which connects the SA-5 complex to its associated BACK NET/SIDE NET radar facility continues on in a southeasterly direction and can be traced to within approximately 2 nm of this transmitting facility.

The receiving facility (Figure 5) which is cable connected to the transmitting facility is north of that facility at 59-20N 024-38E. It contains 6 mast-mounted probable VHF antennas and 6 horizontal dipole antennas (Table 1). The facility is secured and is supported by 2 control buildings, 2 utility buildings, and 5 communications vans.

A THICK EIGHT HF/DF facility (Figure 2) is southwest of the ADZ Headquarters at 59-10-50N 024-37-45E.

HF COMMUNICATIONS FACILITIES AVAILABLE TO CHEREPOVETS SAM COMPLEX A11-2

There are 2 communications facilities in

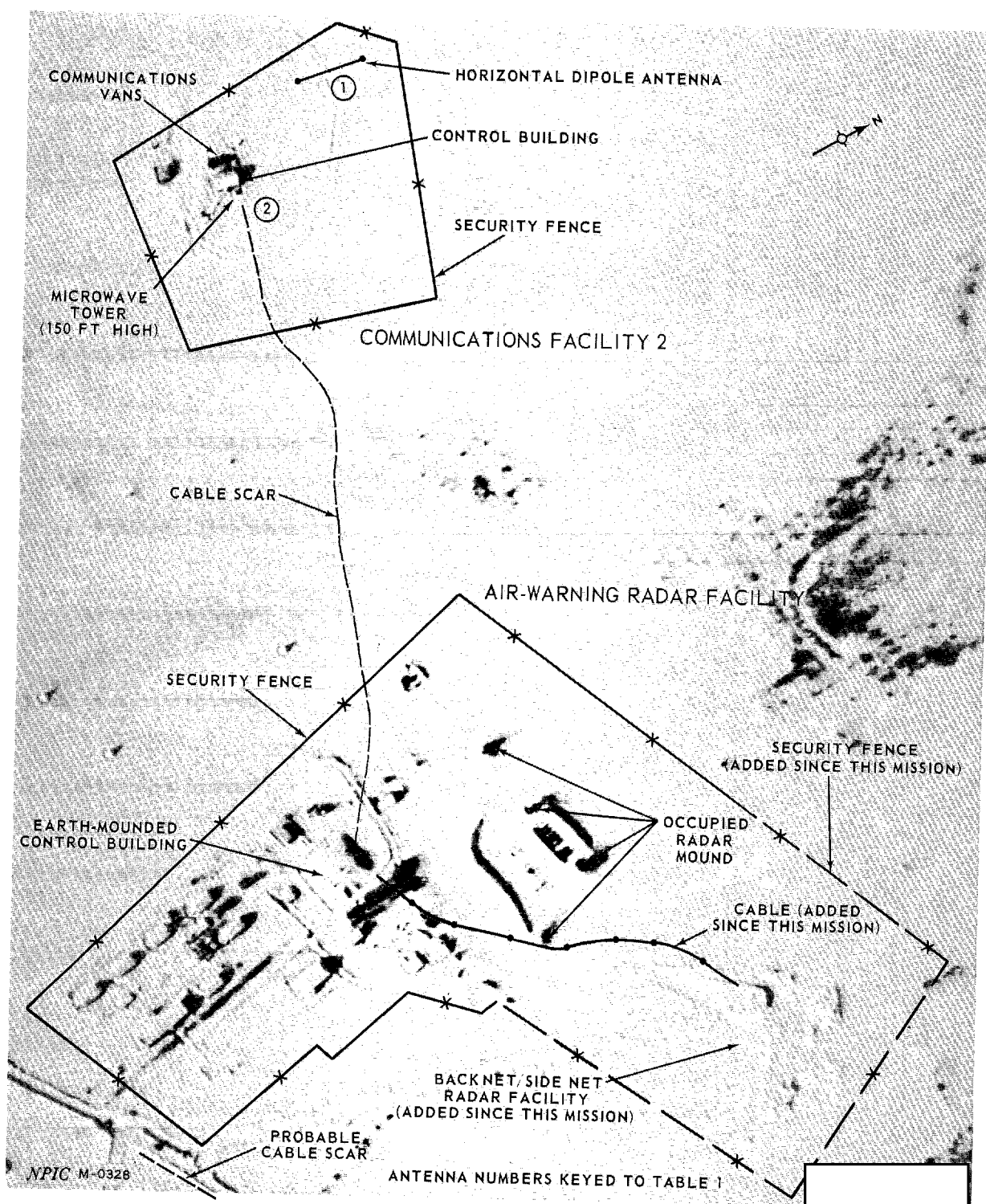
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FIGURE 8. CHEREPOVET AIR DEFENSE HEADQUARTERS FACILITY AND HF COMMUNICATIONS FACILITY 2.

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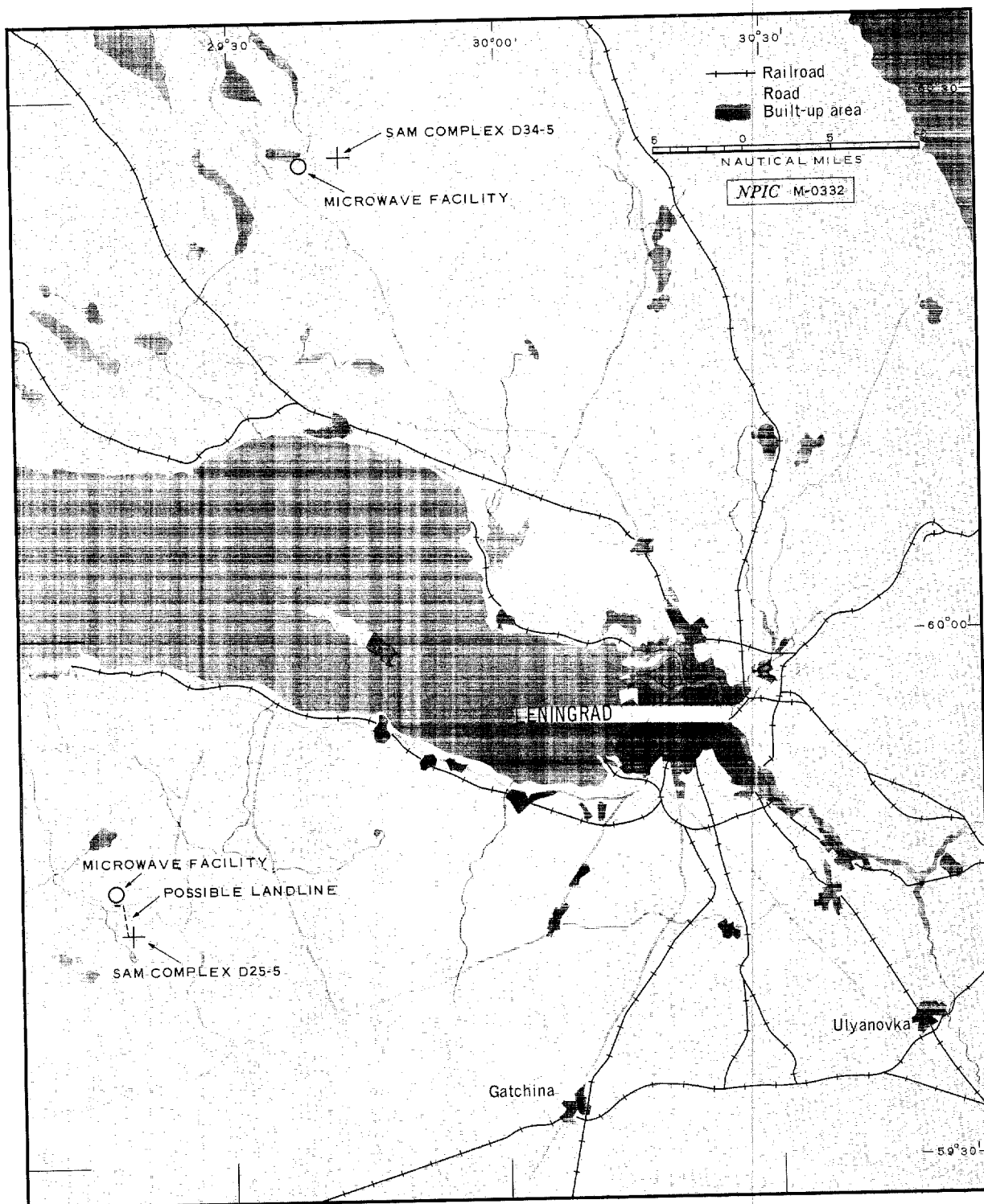


FIGURE 9. LOCATION OF LENINGRAD SAM COMPLEXES D34-5, D25-5 AND ASSOCIATED MICROWAVE FACILITIES.

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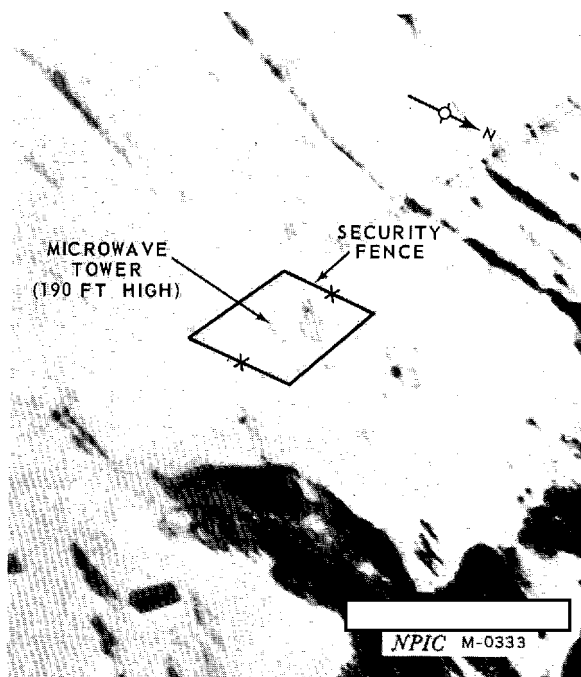


FIGURE 10. COMMUNICATIONS FACILITY POSSIBLY ASSOCIATED WITH LENINGRAD SAM COMPLEX D34-5.

the proximity of the Cherepovets SA-5 Complex (Figure 6). Communications Facility 1 (Figure 7) is 2.6 nm west-northwest of the launch complex at 59-07N 038-04E. It contains 4 mast-mounted probable VHF antennas, and 3 horizontal dipole antennas. The facility is secured and is supported by a control building, 3 utility buildings, and 4 communications vans.

Communications Facility 2 (Figure 8) is 4.6 nm west-northwest of the launch complex at 59-07N 038-01E. The facility contains a microwave tower and a horizontal dipole antenna. The microwave tower is not identifiable by type, but it resembles a MERCURY PLATE installation. This facility is supported by a control building, 3 utility buildings, and 4 communications vans.

CHEREPOVETS AIR DEFENSE HEADQUARTERS AND AIR-WARNING RADAR FACILITIES

The Cherepovets Air Defense Headquarters

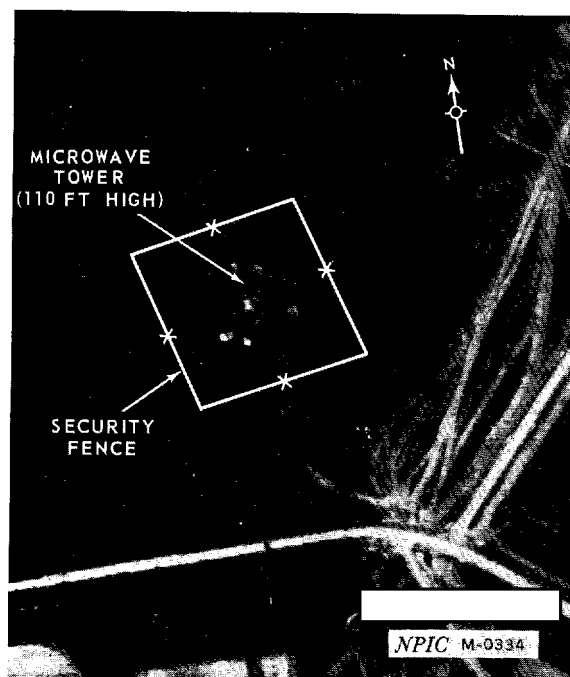


FIGURE 11. COMMUNICATIONS FACILITY POSSIBLY ASSOCIATED WITH LENINGRAD SAM COMPLEX D25-5.

and 2 Air-Warning Radar Facilities (Figures 6 and 8) are all within the same fenced area 4.0 nm south-southeast of Cherepovets at 59-07-35N 038-02-00E.

The one radar facility, as determined from [redacted] contains 2 mounded ranged and azimuth radars and 2 mounded height finder radars attended by 7 vans/trucks parked in a large revetment. The other radar facility contains the BACK NET/SIDE NET radars in support of the Cherepovets SA-5 Complex.

The Air Defense Headquarters Facility consists of 1 earth-mounded building, 1 operations building, and 12 support buildings. A communications cable scar leads from the Headquarters Facility to Communications Facility 1, described above, and thence can be traced part of the way to the SA-5 launch complex. Another communications cable trench leads from the Headquarters Facility to Communications Facility 2, described above.

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Table 1. Summary of Identified Antennas at Deployed SA-5 Complexes

Communications Facilities Available to the SA-5 Complexes	Antenna	
	Designation	Type
Tallinn Transmitting Facility (Figure 4)	1	Horizontal dipole
	2	Horizontal dipole
	3	Horizontal dipole
	4	Horizontal dipole
	5	Horizontal dipole
	6	Horizontal dipole
	7	Horizontal dipole
	8	Horizontal dipole
	9	Horizontal dipole
	10	Horizontal dipole
	11	Horizontal dipole
	12	Horizontal dipole
	13	Horizontal dipole
	14	Horizontal dipole
	15	Horizontal dipole
	16	Horizontal dipole
	17	Horizontal dipole
	18	Horizontal dipole
	19	Horizontal dipole
	20	Horizontal dipole
	21	Horizontal dipole
	22	Horizontal dipole
	23	Horizontal dipole
	24	Horizontal dipole
	25	Horizontal dipole
	26	Horizontal dipole
	None	6 Possible mast-mounted VHF
Tallinn Receiving Facility (Figure 5)	1	Horizontal dipole
	2	Horizontal dipole
	3	Horizontal dipole
	4	Horizontal dipole
	5	Horizontal dipole
	6	Horizontal dipole
	None	6 Possible mast-mounted VHF
Cherepovets Communications Facility 1, (Figure 7)	1	Horizontal dipole
	2	Horizontal dipole
	3	Horizontal dipole
	None	4 Possible mast-mounted VHF
Cherepovets Communications Facility 2, (Figure 8)	1	Horizontal dipole

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COMMUNICATIONS FACILITY POSSIBLY AVAILABLE TO LENINGRAD SAM COMPLEX D34-5

A microwave tower is 2.5 nm west of the Leningrad SAM Complex D34-5 (Figure 9). The tower (Figure 10) is approximately 190 feet high and is secured. No cable trace or similar direct connection could be identified between the microwave tower and the launch complex.

COMMUNICATIONS FACILITY POSSIBLY AVAILABLE TO LENINGRAD SAM COMPLEX D25-5

A microwave tower is 2.6 nm northwest of the Leningrad SAM Complex D25-5 (Figure 9). The tower (Figure 11) is approximately 110 feet high and is secured. A possible landline can be traced part of the way from the launch complex toward the microwave tower.

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REFERENCES

MAPS OR CHARTS

ACIC series, scale 1:200,000

DOCUMENTS

1. NSA. 3/0/TEL/R31-66, *Radio Facilities of the USSR*, 1 Nov 66 (TOP SECRET [REDACTED])
2. CIA. OSI-SR/SC/64-15, *Soviet Air Defense Command and Control Communications*, 21 Dec 64 (TOP SECRET [REDACTED])

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REQUIREMENTS

NSA. P0432/R119-66
NSA. SOC/R47-66

NPIC PROJECT

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